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ROCKS and MINERALS PEEKSKILL, N. Y., U. S. A.

The Official Journal of the Rocks and Minerals Association

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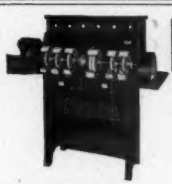

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ROCKS and MINERALS

Edited and Published by Peter Zodac

PUBLISHED MONTHLY

The Official Journal of the Rocks and Minerals Association

JUNE 1936

VOL. 11, NO. 6

WHOLE NO. 60

The Rocks and Minerals Association— Its Reorganization and Purpose

During the past few years when everyone had troubles and worries enough to depress him, it was thought best not to attempt the development of those aims of the Rocks and Minerals Association which were in the minds of the organizers when it was first brought into being. The Association activities have therefore been confined to annual outings at localities chosen by the various geographical sections which would be convenient and yet interesting for the members to visit.

But now when skies are brightening and spring is reawakening all nature, it is time for the Association to move forward to a larger enjoyment of its privileges and its friendships. With this purpose in mind the following officers, distinguished for their interest and their spirit of cooperation, have been selected to direct the Association's activities.

President—R. Emmet Doherty.

Vice-President—Ronald L. Ives.

Secretary-Treasurer—Peter Zodac.

Director of Tours—Richmond E. Myers.

Director of Outings — Fred W. Schmeltz.

R. EMMET DOHERTY
President Rocks and Minerals Association

Mr. R. Emmet Doherty, President, born in Peekskill, N. Y., where he still resides, is one of America's most enthusiastic mineralogists. He has traveled extensively over northeastern United States and Canada visiting a large number of mines, quarries, and other mineral localities as well as many museums. An expert lapidary, he has cut and polished many thousands of specimens. Mr. Doherty is most fortunate in that his charming wife, Muriel, shares his interest and enthusiasm and often accompanies him on his numerous mineralogical trips.

Mr. Ronald L. Ives, Vice-President, was born in Cleveland, Ohio, but forsook the state of his nativity for the more generally mineralized state of Colorado where he is Assistant in the Geological Department of the University of Colorado and the University guide in the summer recreation department.

He has traveled widely throughout

RONALD L. IVES
Vice-President Rocks and Minerals Association

the United States and northern Mexico studying geology, mineralogy and climate. He is a member of the Explorers Club, Colorado Mountain Club and other organizations besides being a member of the Rocks and Minerals Association. As a contributor of many articles to the ROCKS and MINERALS Magazine, he is already quite well known to members of the Rocks and Minerals Association.

Peter Zodac, Secretary-Treasurer, was born in Peekskill, N. Y. He has had a wide experience in mining, prospecting, mineralogy and geology. As everyone in the Rocks and Minerals Association knows, he is the Founder and Editor of ROCKS and MINERALS Magazine; the author of "How to Collect Minerals," the best book on mineral collecting ever printed, and organizer and charter member of the Rocks and Minerals Association. He is also a member of the Mineralogical Society

PETER ZODAC
Secretary-Treasurer Rocks and Minerals Association

of America and the New York Mineralogical Club. [1]

Mr. Richmond E. Myers, Director of Tours, and a native of Bethlehem, Pennsylvania, is an instructor in economic geography. For five years he

RICHMOND E. MYERS
Director of Tours
Rocks and Minerals Association

[1] The Secretary did not write this paragraph.

was connected with the School of For eign Travel as Director of Germanic Tours. He has traveled extensively throughout North America and Europe; from Alaska to Panama, from Labrador to the Gulf of Mexico—from Spitzbergen to the Alps. Mr. Myers is Director of the Norwegian Mineral Collecting Tour, sponsored by ROCKS and MINERALS, which will leave New York City July 4th.

FRED W. SCHMELTZ
Director of Outings
Rocks and Minerals Association

Fred W. Schmeltz, Director of Outings, was formerly of New York City where he was director of outings in the east. Now a resident of the State of Arizona, he is director of outings there and is also Secretary of the Arizona Mineralogical Society. He has traveled extensively throughout the United States, has had a wide experience in mineralogy, and is most capable, faithful and energetic in all he undertakes as some of the members in the east may recall from the very efficient way he planned and conducted the eastern outings.

The Purposes of the Association

Organized to stimulate public interest in geology and mineralogy and to endeavor to have courses in these subjects introduced in the curricula of the public school systems; to revive a general interest in minerals and mineral collecting; to instruct beginners as to how a collection can be made and cared for; to keeep an accurate and permanent record of all mineral localities and minerals found there and to print same for distribution: to encourage the search for new minerals that have not as yet been discovered; and to endeavor to secure the practical conservation of mineral localities and unusual rock formations.

It is now planned to take up each of these purposes more thoroughly and energetically that there may be a wider dissemination of the knowledge of mineralogy and a greater stimulation in collecting with special individual attention to the minerals of a member's locality.

Advantages of Membership

All members in good standing receive the following privileges from membership:

(1) ROCKS and MINERALS, a monthly magazine.

(2) A member's identification card that secures the privileges of many mines, quarries, clubs, societies, museums, and libraries at home and abroad.

(3) The right to participate in outings and meetings arranged for by the Association.

(4) The right to display a certificate of membership and to place after their names a designation indicating their membership or to advertise membership on stationery, etc.

(5) The distinction and the endorsement which comes from membership in the world's largest mineralogical society.

(6) Common minerals will be identified free of charge if a stamped, self-addressed envelope accompanies the specimens. Specimens, however, will not be returned.

All subscribers to ROCKS and MINERALS Magazine automaticaly become members of the Rocks and Minerals Association and upon their subscription being received, cards of membership are issued by the Secretary.

Clubs, museums and other organizations or corporations, affiliating with the Rocks and Minerals Association through subscription, may secure (for

the nominal fee of 25c) a certficate of membership which are in such form they may be framed for hanging upon walls.

Those who are already members and who wish cards for the ensuing year, may have the same by writing the Secretary and enclosing self-addressed, stamped envelopes. Certificates of membership for individual members are also available for the small fee of 25c.

Dues

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Honorary Member .....No Dues

A Life Member receives all privileges and is exempt from all further dues for life.

An Annual Member is one who pays his dues annually.

An Affiliate Member is a club, society, museum or corporation who pays its dues annually.

An Associate Member is a close rela tive (son, daughter, etc.) of an Annual Member. He or she receives all privileges except the official magazine, ROCKS and MINERALS.

An Honorary Member is one who renders distinguished services to the Association.

Some Achievements of ROCKS and MINERALS

ROCKS and MINERALS was founded September, 1926. Prior to that time, no collector's magazine had been published since 1908. Since its foundation, ROCKS and MINERALS has the following achievements to its credit;

Its title is registered in the U. S. Patent Office and each issue is copyrighted.

It has printed many articles that have been a distinct contribution to mineralogy among which were "The Compilation of Gem Names" by Gilbert Hart, the most complete list of gem names ever printed (began December-1927, expired June, 1931); the most complete article known on micro-mounts, "Preparation of Micro-Mounts" by Dr. L. C. Wills (December, 1931); also a "Special Opal Number" (March, 1933); it sponsored and printed the most complete and exhaustive investigation of diamonds known to have been found within the United States (October, 1934 to March, 1935).

It published as separate bulletins, "The Working of Semi-Precious Stones" by J. H. Howard—the first authentic information on the cutting and polishing of semi-precious stones (since then amateur lapidaries have sprung up like mushrooms all over the country); and "How To Collect Minerals" by Peter Zodac—the most complete information known on the collection and the care of mineral specimens.

It sponsored a contest for the selection of a rock and a mineral to be known as our National Specimens—Granite and Gold won the honors.

It was instrumental in the formation of many mineralogical clubs and societies. It organized the Rocks and Minerals Association which in turn inaugurated National Outings that are held yearly.

The Insignia of the Association

The insignia of the Association shall consist of a triangular curved shield bearing acrosss the top the words; Rocks & Minerals Ass'n. Two ribbon streamers, each with two major folds, are suspended from the top, along the sides of the shield, and curve inwards; a small space at the bottom between the two ends of the ribbon is inscribed; Est. 1928, (the date of the formation of the Association). Each streamer carries a latin word Granum (left) and Aurum (right); these denote the National Specimens, Granite and Gold.

The center of the shield represents a compass face, denoting that the Association is world wide. Two crossed mineral hammers lying across the compass face, denote geology and mineralogy (rocks and minerals).

The insignia was designed by Mr. Arthur A. Grott, of New York City, a member of the Rocks and Minerals Association, and was the most appropriate of the many designs submitted by members during a contest held in the latter part of 1934.

The Rare Mineral Piedmontite

By PRESTON E. CLOUD

In the September, 1935, issue of ROCKS and MINERALS, Mr. R. G. Martin noted the occurrence of the rare mineral piedmontite in Adams County, Pennsylvania. Following the directions of Mr. Martin and escorted by Mr. Charles Boerner, both of Waynesboro, Pennsylvania, I had the opportunity to visit the fine localities at Boyd's school a few years ago. Since then I have made several visits to these localities and have also investigated Mr. Stose's report of the occurrence of the mineral near Charmian. I herewith present a brief resume of the facts relating to the occurrence of the mineral piedmontite.

At two localities, one just southeast and one about a mile north of Boyd's school, on the west side of Buchanan Valley, one may find fine specimens of piedmontite. A brick red to deep purplish red mineral, it occurs filling veins up to a centimeter in thickness and several centimeters in length or covering slabs of rhyolite along fracture crevices. The fine hairlike crystals may cover patches as large as the palm of the hand or only the size of a dime, but the mineral consistently maintains a fibrous radiate structure except where it forms amorphous smears or spherules. This locality is very close to the contact of the greenstone with the rhyolite on the west side of Buchanan Valley. The piedmontite itself occurs in the pre-Cambrian rhyolite.

Chemically, piedmontite is very similar to the common green epidote, which it resembles crystallographically, except that it contains manganese. Dana gives the composition as HC_2 (AL, Mn, Fe)$_3$ Si_3O_{13}. It is of no commercial value, being a rarity reserved for the collector's cabinet. It is fairly hard and of a pleasing color but does not take a very brilliant polish, making its use as a gem stone unlikely.

In addition to the Buchanan Valley localities, piedmontite is found along the Western Maryland Railroad, southeast of Charmian Station in Adams County; at Blue Ridge Summit on the Pennsylvania-Maryland border; and, rarely, in Franklin County at scattered places on Jack's Mountain. In every case it occurs near the contact of the greenstone and the rhyolite.

Piedmontite was named from its occurrence in the Piedmont Province of Italy where it is found as brownish to greenish black monoclinic crystals in braunite with quartz and tremolite, and in crystalline limestone. It also occurs in quartz near San Bernardino, California; at numerous places in the crystalline schists of Japan; in the crystalline limestones of Sweden as red tabular crystals; and in the mica schists of Brittany and England.

The regular occurrence of piedmontite with epidote in fracture veins near contact lines, suggests its origin as an alteration of the more common epidote.

A KEY TO PRECIOUS STONES

By

L. J. SPENCER

C.B.E., M.A., Sc.D., F.R.S., F.G.S., F.C.S., F.R.G.S.

Editor of the MINERALOGICAL MAGAZINE; formerly Keeper of Minerals in the British Museum; Honorary Life Fellow of the Mineralogical Society of America; Honorary Member of the German Mineralogical Society.

237 pages, 8 plates, 1 color plate on dust jacket. Published by Blackie & Son, Ltd., 50, Old Bailey, E. C. 4, London, England. Price 5 shillings. (Released Thursday, May 21st, 1936).

Just as we go to press, a copy of this new book arrives. It is intensely interesting and we are very glad to call it to the attention of our readers. A review of it will appear in the July issue of ROCKS and MINERALS.

Mineral Provinces of Oklahoma

By O. F. EVANS
University of Oklahoma

Oklahoma is so situated that it is geographically a connecting link between the Paleozoic mountains of eastern North America and those of Mesozoic age to the west. The northeast corner of the state lies on the western flanks of the Ozarks where the great lead and zinc mines are located. In the southeastern part south of the Arkansas River are the Ouachita Mountains which are believed to be related in age to the Appalachians. In the south central part are the Arbuckle Mountains also of Pennsylvanian age and seventy miles west of the Arbuckles are the Wichita Mountains which were probably folded up in Mississippian times. Outside of the mountain areas the rocks are for the most part flat lying or slightly westward dipping sediments becoming progressively younger to the west. In the extreme northwest of the "panhandle" area are lava flows having their origin in those disturbances connected with the birth and growth of the Rocky Mountains.

Metamorphic rocks are almost entirely absent. The only places they occur are in the eastern and the southeastern parts of the state and even here the changes are not very intense. Intrusive rocks accompanied by mineralization are rare and this combined with the lack of metamorphism explains the fewer minerals of Oklahoma as compared with the states to the east and west.

The most interesting region as regards variety, beauty, and crystal perfection of the minerals is the lead and zinc district in the northeastern part of the state. Beautiful calcite crystals up to several inches in diameter are found in great abundance. Aragonite frequently occurs in the form of globular aggregates. Dolomite is also present in both crystal and massive form. Galena and sphalerite are the principal ore minerals although anglesite, cerussite, smithsonite, and calamine are present as ores in the weathered zone. Other associated minerals which are common are pyrite, marcasite, quartz and chalcopyrite. The crystals of these are usually not very large but are quite perfect and occur in a considerable variety of forms. Minerals occurring rarely are greenockite, melanterite, and gypsum. These minerals can not be found to any great extent on the surface but come from the mines which are 200 to 600 feet deep. Many interesting specimens can be picked up from the mine dumps and there are several roadside stands that specialize in the sale of the minerals of the district. Properly introduced visitors are allowed in some of the mines but they are not open to the public in general.

The Ouachita Mountains are not in general a very good collecting ground. Geologically they are somewhat like southern Arkansas. Many localities are rather inaccessible. Quartz and chert are common. The region has been worked over by prospectors and near the Arkansas line are a number of openings made in searching for lead, zinc, and copper. From the dumps some specimens of galena, sphalerite and their common associates can be obtained. Small manganese mines were operated in the district during the world war and specimens of psilomelane, wad, and rhodochrosite can be found, but on the whole the region is not highly mineralized.

The Arbuckle Mountains are a moderate uplift consisting mostly of Paleozoic sediments covering an area of a little more than 500 square miles. In the western end are two outcrops of Proterozoic rhyolite and the southeast edge of the mountains has perhaps 100 square miles of granite exposed. This granite is fairly coarse and its principal minerals are grey quartz, pinkish feldspar, and hornblende. Mica is not very plentiful in any of the rocks of Oklahoma. The Arbuckles have been considerably folded and faulted but no metamorphism has occurred and very little mineralization. It is not a very interesting region for the mineral collector as good crystal specimens are rare. Marcasite concretions with radiating

structure are found in several places in the Woodford chert and small but quite perfect pseudomorphs of limonite after pyrite are quite numerous at White Mound. Travertine is deposited in considerable quanities in the streams coming down off the Arbuckle limestone as at Turner Falls and at Price's Falls. Some manganese was shipped from near Bromide during the world war. Here and there in the Arbuckle limestone are masses of a few tons of hematite and limonite. They are of good quality but too scattered to be of commercial value.

The Wichita Mountains are about 70 miles west of the Arbuckles and have about the same areal extent. They are considerably higher than the Arbuckles; some of the peaks rising 1,000 to 1,200 feet above the surrounding plain. Much more erosion seems to have occurred here than in the Arbuckles and the exposure is mostly of Pre-Cambrian granites and gabbros. A few square miles of limestone is exposed along the northeast border and a few hills of the same kind of rock southeast. There are no metamorphic rocks in the region. Because of the greater exposure of igneous rock it is a much more interesting place for the mineral collector than is the Arbuckles. Nearly all parts are easily reached by auto. The eastern end near Lawton is a United States Military Reservation and permission should be obtained before traveling over it. About half of the remaining area is a Federal game preserve and is thronged with campers and picnickers during the summer months. West of the game preserve the mountains are less continuous and to a considerable extent stand up as isolated peaks in the flat at Permian sediments. There is a great variety of granites and like those of the Arbuckles, the chief constituents are quartz, feldspar, and hornblende. The feldspar is very pink and where the mountains are bare of vegetation they have a reddish appearance. Magnetite is a very plentiful accessory mineral. In the north edge of the Game Preserve near the old town of Mears so much of it weathers out that often cupfuls of magnetite sand can be dipped up in the ditches at the side of the road. In the gabbro area west of the Game Preserve at the upper narrows of Otter Creek there is a considerable area of titaniferous magnetite three or four feet thick. About two miles southwest of Forest Headquarters is a dike about 30 feet wide that contains a considerable number of zircon crystals. This is the locality mentioned in Kraus and Hunt's "Mineralogy." Near one of the Park entrances west of Forest Headquarters is a pegmatite dike that has had a number of prospect holes sunk on it. Native copper, chalcopyrite, cuprite, malachite, and azurite can be obtained. Crystals of quartz, feldspar, hornblende, and probably apatite and tourmaline are also present but nothing of gem grade.

Copper is quite widely dissiminated through the rocks of the Wichitas, especially in the western end, and pieces of malachite are quite common on the surface in the vicinity of Mountain Park and Cold Springs. A number of prospect holes have been put down in various places on thin malachite veins in the decomposed material. Gold is also present in very small amounts. About 30 years ago the region had a prospecting boom and was thoroughly gone over for gold and copper but nothing of value was found. There are a few quartz dikes up to three or four feet wide and one or two have the rusty stains sometimes associated with gold but they appear to be barren. Deep Fork of the Red River flowing south from the mountains carries a small amount of placer gold, but mostly it is too fine to be profitably recovered.

West of Cold Springs at the apex of the most northern peak in a medium grained granite there are feldspar crystals about four inches across and quartz crystals as large as eight inches in diameter but they are firmly imbedded in the rock. In the vicinity of Saddle mountain, about eight miles east of Cooperton, conglomerates outcrop along the streams. Here crystals of pyrite up to an inch in size and also pseudomorphs of limonite after pyrite can be obtained.

Outside the mountain regions of Oklahoma there are at least two other mineral areas of general interest. In a narrow strip running north and south just at the eastern edge of the Permian sediments "barite rosettes" are common. These are concretions in sandstone caused by barium sulphate crystallizing in sand. Twinning occurs and the crystals are often arranged in such a way as to suggest

the petals of a rose. They are of all sizes up to a foot or more in diameter. It has been said that the only other place they occur in the world is in Egypt. Gypsum is plentiful in the western part of the state both in the massive and the crystal form. The Glass Mountains are hills which have so many gypsum crystals lying on the surface that they sparkle in the sunshine as though covered by pieces of glass. They are frequently beautifully twinned.

From the standpoint of the mineral collector the state is not so interesting as Arkansas or Colorado yet there are a number of problems like that of the origin of the barite rosettes having to do with the deposition of minerals under arid conditions that are of interest to the student of mineralogy.

A Brief Visit to Table Mountain, Colorado

By O. A. REESE

For some time I have been trying to get a suite of nice specimens of the Table Mountain, Colorado, zeolites but could not find anything to suit me. Finally I decided to go out to the locality itself with the hope some nice minerals could be collected. Many fine minerals were taken out of the locality some 20 to 30 years ago; but this was before my time in Colorado.

Early one morning, last summer, my son and I started off for Table Mountain. We duly arrived at the locality and after quite a bit of scouting around, came to a spot where a large section of rock had recently fallen down from a cliff to land on a shelf below. The block of rock showed several zeolite cavities and had many small cracks in it, in fact, the block had been split apart into three main pieces of several tons each. The occurrence looked promising and might yield some interesting minerals. We then hunted up the owner of the property, secured his permission to work on the rock and came back only to find a crew of FERA men working on the site. Fortunately, the men did not go up high enough to reach the three slabs we discovered. Arming ourselves with chisels, wedges, and hammers, we set to work. Soon the large blocks were reduced to a number of smaller ones after many knuckles being skinned and a finger nail lost. But the work entailed warranted the effort as many fine specimens were secured for our collection. The specimens taken out included apophyllite, analcite, chabazite, laumontite, levynite, natrolite, stilbite and thomsonite. The best was an analcite group, about 12 to 14 inches in diameter, with hundreds of excellent crystals—a real museum piece.

I have found in the last few years that it often pays to work some of the old localities. Just dig a little farther or a little deeper than the other fellow did, and you may be rewarded. An example is the goethite pocket referred to by Mr. White in his excellent article on the Crystal Peak Region.* Years ago some one had taken out a pocket of smoky quartz crystals and stopped there. Examination of the floor of this pocket revealed that it contained feldspar, a mineral always worth investigating. We began to take out the feldspar; it came out in blocks about four inches thick and whose underside was well crystallized. Underneath the feldspar was a mass about two feet thick consisting of rust-colored mud, gravel and disintegrated feldspar and granite; it was in this mass that the goethite was found. Even after the entire mass was cleaned out of the pocket and only solid granite remained, I noticed a small seam in one of the back corners and following this for about a foot, we opened up another pocket and uncovered a number of large smoky quartz crystals some of which contained clusters of goethite attached to their sides.

*White, George M. *The Crystal Peak Region near Florissant, Colorado.* ROCKS and MINERALS, Vol. 10, No. 12, Whole No. 54, Dec. 1935, p. 184.

Photo by Lavender *Courtesy Colorado Mountain Club*

(Top). Aguille Kismet, in the San Juan Range, Colorado.

(Bottom). Gilpin and Dallas Peaks in the San Juan Range. This range is composed of intestratified volcanics and sediments, partially metamorphosed and strongly mineralized.

Some Minerals of the Serpentine Range Near Easton, Pennsylvania

By GEORGE W. GEHMAN

In this article only brief mention will be made of some of the geological features where they have a direct bearing on the mineral occurrences to be described. The geological relationship of the serpentine and surrounding formations at Easton have been described by F. B. Peck in the New Jersey Geological Survey Report of 1904. A number of quarries have been operated at different times along the outcrop of this serpentine belt, but only two quarries and an excavation for a reservoir will be considered in the present article.

The first quarry to be mentioned is the one known as the Sherrer Quarry. It is the only one that has been in continuous operation for a long time and is now operated by the Williams Paint Company of Easton, Pennsylvania. This quarry is located close to the Delaware River just beyond the city limits of Easton and along the highway leading to the Delaware Water Gap. The working face of the Sherrer Quarry at present is about 400 feet long and more than 100 feet high and extends approximately in an east and west direction. Only the extreme east and west ends are operated just now and it is at these places that the minerals mentioned are to be found.

Dana states that in the early stages of quarrying operations at Easton, zircon was found in talc but the deposit was soon exhausted. The exact locality was not given.

About five years ago the writer found a few small crystals of zircon in a white and very tough tremolite rock at the eastern end of the quarry; none were more than three-fourths of an inch long. Later more were found embedded in talc and mica; a lilac-colored massive wernerite made its appearance at the same time and occasionally small zircons were imbedded therein. Lately crystals up to one and a half inches in length have been found at the extreme western end of the quarry.

The most interesting minerals that have been found in recent years are the radioactive minerals thorianite, thorogummite, uranophane, autunite, and a uranium mineral containing vanadium which has the appearance of carnotite. The autunite fluoresces beautifully under the ultra-violet light.

The thorianite occurs in small pitch black grains from pinhead size up to one-half inch in diameter, rarely larger, and seldom does it show crystal outline in the form of a cube. When first discovered by the writer it was labeled uraninite. Only a qualitative analysis had been made then of the mineral. Later these uranium minerals were partly investigated by the United States Geological Survey (see American Journal of Science, Volume XXVI, July, 1933. Thorianite from Easton, Pa., by Roger C. Wells, John G. Fairchild and Clarence S. Ross, pp. 45-54).

Uraninite generally contains variable amounts of thorium, and when the thorium is in excess of the uranium the mineral is called thorianite. This is the case with the Easton mineral, hence it is thorianite instead of uraninite. All specimens from Easton labeled uraninite should be relabeled thorianite.

There is only one other locality where the mineral thorianite has been found in quanity and that is in Ceylon.

Thorogummite has been found at only one locality, and that is Barringer Hill, Texas.

The uranium minerals at the Sherrer Quarry are confined to a very narrow zone and when first discovered this zone appeared close to the floor of the quarry and seemed to extend into the floor. As the face of the quarry was advanced the mineralized zone rose until at present it is about 25 feet up on the quarry face.

At times the uranium minerals appear only as thin coating on the face of the serpentine where cleavage seams occur. These coatings may be either uranophane, autunite or the above

mentioned carnotite. The maximum width of this uranium mineral bearing zone is about 18 inches; at times it dies out altogether but appears again a short distance beyond.

It is generally where the maximum width occurs that unaltered thorianite is found. This vertical extent appears never to be more than about 10 feet.

Near the top of the quarry there is a streak of dark colored talc of about 15 inches in width. It extends about one-third of the way down the face of the quarry in an almost perpendicular direction and seems to reach into the face of the quarry parallel with and close to the uranium deposit.

Zircon crystals are occasionally found in this talc and minute grains of thorianite rarely. The wernerite mentioned above occurs in contact with this talc, and occasionally small flakes of molybdenite appear also. The writer has a small specimen of the rock containing all three of the above mentioned minerals—thorianite, zircon, and molybdenite.

It is rather unusual to find uranium minerals in such a basic rock as serpentine; they belong rather in granite and pegmatite rocks. The serpentine at Easton is possibly underlain by a mass of igneous rock of an acid nature. There is evidence to this effect, for the serpentine is intruded at various places by pegmatite-like dykes. One such occurrence is near the western end of the quarry. The uranium minerals may have been brought up to their present position by hot solutions given off by this underlying igneous mass.

About one mile west of the Sherrer Quarry along the Bushkill Creek there is an old quarry now abandoned. The rock is mostly talc. Perfect cubic crystals of pyrite occur here and also traces of a yellow uranium mineral. A brown mineral was found here several years ago by the writer which fluoresces a light green. It has not been identified as only a small piece was saved.

About midway between the last mentioned quarry and the Sherrer Quarry, on the side of Chestnut Hill, are the reservoirs supplying water for the city of Easton. Some years ago a new reservoir was built beside an existing one. During the excavation of this new reservoir rock similar to that of the Sherrer Quarry was exposed, also a deposit of talc. Along the contact of the serpentine and talc, thorianite in grains and cubic crystals occurred quite abundantly.

Almost without exception the thorianite having the most perfectly developed crystallization was also the most friable, being full of cracks as if it expanded when the crystal formed. The thorianite from this locality is pitch black and shows no signs of alteration, while that from the Sherrer Quarry is often partly altered to a brown and orange color. This alteration may be on the outside of a grain of thorianite, the center being black and lustrous, or it may be the center of the mineral that shows the brown alteration while the outside remains unaltered. In the Sherrer Quarry the least altered thorianite is generally found at the upper part of the deposit. It may represent the original mineral; the others, alteration products. Where the deposit was first observed at the floor of the quarry only thorogummite, uranophane, and autunite were noted. Surface water becoming acid due to the alteration of iron pyrite may be responsible for the alteration of the thorianite, as pseudomorphs of limonite after pyrite are frequently found in the serpentine.

It is unfortunate that the reservoir locality is no longer accessible. The only information of this occurrence was derived from material dumped along the river bank and at a time when the reservoir was so nearly complete that further knowledge could not be gained of the nature of the occurrence in place. It would be interesting to know the nature of the formation from which these uranium minerals have been derived. That they have been found at three localities widely separated may indicate that there is in depth a sufficient concentration of these minerals to be of economic value.

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Mineral Collecting by Hydroplane

By WILBUR J. ELWELL
Danbury, Conn.

We have walked to many a locality on foot; we have driven to many more by car; and we even rode on horseback and in a wagon to some. Consequently when T. Lipton Smith suggested that we try something new and novel—visiting some of them by hydroplane, the writer acquiesced; he was willing to try anything once. A trip was then mapped out to last one day and where mines and quarries were situated close by or alongside a lake or river, allowing one hour for each locality. Arrangements in the meantime were made with David E. Dowd, also of Danbury, and owner of a hydroplane. The day chosen was a good clear one in April of this year, and early in the morning we zoomed aloft and headed west.

The first stop was at the world's famous magnetite mine at Tilly Foster, N. Y., 10 miles west of Danbury. The hydroplane dropped anchor in the lake alongside the old dumps (the dumps are very extensive and run right into the lake), we all got out and explored the dumps. Good clinochlore crystals, group crystals of brucite, also brucite crystals pseudomorph after dolomite and chondrodite crystals were collected. We searched in vain for gemmy yellow sphenes which the late Ernest Schernikow found in 1891 (several hundred were found by him that weighed from 1 to 15 carats each and sold for over $1,000). About the same time, 1891-92, excellent gemmy chondrodite crystals, from one-half to four inches across, were also found. The Tilly Foster mine in its day (it has long since been abandoned) produced 70,000 tons of ore a year.

The next stop, about 10 miles to the north, was the Gypsy Trail lake, about two miles north of Carmel, N. Y., where the nearby arsenopyrite mine was visited. Unfortunately, the mine was about one-half mile west of the lake so that we had to hike the distance. Arsenopyrite, the chief ore of arsenic, and scorodite were collected. Only a brief stay was made here.

Again we headed north and landed in a lake near the Scoville ore mine (limonite), north of Salisbury, Conn., about 50 miles away. Here we looked in vain for a very rare mineral called scovillite (rhabdophanite) worth $50 a specimen. We did succeed in getting a few "patent leather black" limonite specimens. We also saw some fat rattlesnakes and lazy copperheads but did not "collect" any. (When in this section of Connecticut we always wear leggings and leather gloves as a precaution against bites from the venomous reptiles).

Aloft again, we headed southeast for Haddam Neck (about 60 miles away) and on the Connecticut River, in Connecticut. We landed alongside the old abandoned Gillette quarry whose dumps run right into the river. We searched and searched for the green tourmalines which made this feldspar quarry famous, but with no result. The best we could find in the mineral line was a small group of quartz crystals.

The Rock Landing feldspar quarry, about three miles to the north, was the next stop where microcline and beryl, in crystals, were collected.

About 45 miles to the west, is Roxbury Station, also in Connecticut, where we landed in Shepang Run, one-half mile or so east of the old siderite mine on Mine Hill. Again we had to hike but were rewarded as we left the mine dumps with good specimens of siderite, sphalerite, pyrite, quartz, and arsenopyrite crystals.

Four miles down the river is Roxbury Falls, near which is a locality noted for garnets. This we visited and collected good specimens.

Our last stop was Judd's Bridge, 10 miles west of Roxbury Falls and five miles south of Washington, Conn. Here we found excellent specimens of cyanite and ilmenite (washingtonite).

Danbury and home was only a few miles (about 20) to the south where we arrived just as it was getting dark. It was a most pleasant and interesting trip—from daylight to dark—and being new and novel from the standpoint of mineral collecting, we enjoyed it all the more. The total distance covered was about 214 miles.

An Example of Mineral Coloring in Nature

By WM. C. CASPERSON

On one of my numerous collecting trips to the Upper New Street Quarry, Paterson, N. J., back in the summer of 1919, I uncovered the most beautiful and most actual example of the coloring of minerals in nature I have ever seen.

Upon tapping the solid rock wall of the westerly end of the quarry I recognized the hollow sound indicating a pocket near at hand. By carefully working out the front wall of rock I opened a cavity about 18 inches wide, 14 inches high, and 14 inches deep. The pocket was shaped much like a large flattened geode with curved ceiling and walls and almost flat bottom.

The entire cavity was lined with small quartz and calcite crystals. Scattered over the side walls brilliant pearly groups of pink and white heulandite stood out. On the floor of the cavity a thin layer of tiny chabazite crystals covered the quartz and calcite and scattered over this combination were groups of heulandite.

Interspersed between the heulandite groups on the side walls of the pocket were balls of hematite ranging in size from one-eighth of an inch to three-eighths of an inch in diameter. Many of these hematite balls were brilliantly black, while others were partly oxidized and represented all stages of disintegration.

From one of the largest of these disintegrating balls of hematite, situated almost directly in the center of the rear wall, a stream of red oxide flowed downward in fanlike formation coloring all the minerals in its path. It was indeed a stream of "aima" (blood)—true to name, and looked for all the world like a bleeding wound.

Many specimens of quartz and calcite vividly colored with iron oxide had been collected at this quarry and are still highly prized specimens. Here I beheld nature actually coloring the minerals.

I did my best to preserve the pocket intact but it was too large and the rock was too solid and hard. The best I could do was to carefully remove the groups of chabazite and heulandite and a few of the hematite balls, especially the one from which the oxide was flowing. The most important specimens I still have in my private collection.

Not without interest in this connection, was the sequence of the crystallization which occurred in the pocket. The quartz and calcite with the hematite were the primary crystal formations. The red oxide formed only a coating on the quartz and calcite. Upon this coating of oxide, and in some places a thin coating of hematite not oxidized, formed the chabazite and heulandite groups. The groups of heulandite directly in the path of the red oxide described were not only coated on the surface but were colored throughout the structure of the crystals, indicating the presence of the oxide during the crystallization of the heulandite.

THE AMATEUR LAPIDARY

Conducted by J. H. HOWARD*
504 Crescent Ave., Greenville, S. C.

Amateur and professional lapidaries are cordially invited to submit contributions and so make this department of interest to all.

*Author of—*The Working of Semi-Precious Stones*, and* Handbook for the Amateur Lapidary.

A Rock Holder

By J. H. HOWARD

The accompanying sketch of a rock-holding device for use in sawing, is submitted by Frederick W. Neave, 1523 Henry Street, Berkeley, Calif. He advises that the scheme is not original with him but was worked out by Mr. H. D. Packard, North Hollywood.

I am pleased to be able to present the idea here for it certainly has possibilities, though I see some serious shortcomings that I would expect it to possess. I have not asked Mr. Packard about these and I may be mistaken in some of them. At any rate I present the idea as certainly worth trying, either as it stands, or, modified to suit the builder. As it now stands I would expect it to give trouble for these reasons:

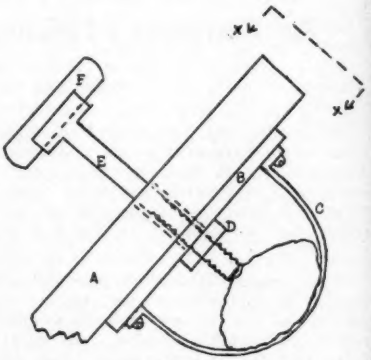
1. It is too limited in the size of rocks it will hold.

2. Stones, unless quite regular in shape, would have to be wedged into position before the screws were tightened. (This suggestion was offered by Mr. Neave). If the saw were eccentric the wedges would be quite likely to loosen during the sawing.

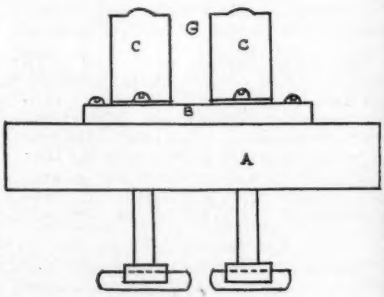
3. The 2" pipe straps are not strong enough and under the pounding of an eccentric saw they would give enough (in their tendency to straighten) to allow the stone to come loose.

4. While in many cases this device would be satisfactory for holding a nodule or a lump to be sawed into two pieces, it would not be effective in sawing thin slabs.

Let me repeat that I may be wrong on some of these counts. I have not tried the scheme and have not called these to the attention of Mr. Packard nor asked him about them.



SIDE VIEW



View "X-X"

A—Swinging board
B—5"x6"x⅛" flat iron
C—2" Pipe straps
D—⅜" Nut soldered to iron plates
E—⅜" Machine bolt
F—Bolt head slotted and inserts soldered in place to form wing nuts
G—Slot between straps

I would suggest that some of the expected difficulties that I have mentioned might be overcome by building the retainer of structural steel shapes, either channels or angles of light weight, thereby getting greater strength and a flat bearing surface for material to be sawed.

Then—after pointing out the several of what I think might be defects of the device, I cannot help but take the occasion to preach a little sermon on "diamond saws" and to ask, "Why use a rock holding device"? Suppose we have a piece of ordinary material the size of the one pictured in the sketch, with a cross section of, say, 1". And suppose we are going to saw it with a mud saw and hold it in the holder shown in the sketch. The swinging arm must be put in place. The stone would quite likely have to be either wedged into position or have some preliminary grinding done on a carborundum wheel. All this would take probably five minutes. Then the mud saw would probably require 15 to 20 minutes to make the cut.

If we were using a 7" diamond saw the rigging would take less than one minute. The stone would be held by hand and the sawing would be completed in from one to two minutes.

I seriously maintain that the use of the mud saw by the amateur, with its consequent difficulty of holding the material, "messing up" everything with the oil-carbo mix, the undue time required, the frequent breakage of material by heat or by the bumping of the saw, the roughness of the cut and so forth, are wholly unnecessary, and should not be endured.

I fully realize that many amateur gem cutters must watch their pennies. But I also know that every amateur must spend SOMETHING for supplies and equipment, and I insist that the diamond saw will pay greater returns in satisfaction than an equal amount spent in any other way.

Club and Society Notes

New Haven Mineral Club

At the annual meeting of the New Haven Mineral Club held in October 1935, the following officers were elected:

Arthur Sandiford, President.
William H. Otersen, Vice-President.
Charles Thomas, Treasurer.
Frank Wilson, Secretary.

The Club has had an unusually fine winter season, its monthly meetings were well attended and keen interest in mineralogy was only too apparent. The chief feature of each meeting was a lecture by some authority on mineralogy or its related subjects. The lecturers and their subjects were as follows:

November. Charles Thomas—"Mineral Collecting in Connecticut"—with a fine representative display of minerals actually collected in Connecticut over a period of years.

December. Herman Levy—"Fossils With Relation to Minerals." (accompanied by lantern slides and specimens collected). The geological part of the lecture will long be remembered by the members.

January. Arthur Sandiford—"Micro Chemistry." A lecture with the aid of several microscopes whose purpose was to show members how to analyze specimens which were difficult to identify in any other way.

February. F. Fowler—"Luray Caverns." A very good illustrated lecture on one of the most interesting places in the United States.

March. Rufus S. Hart—"Iron Industry of Connecticut." This was another illustrated lecture and brought to light locations and data that even some of the older collectors knew nothing about.

April. H. Thorp—"Orio Donts Fossils." A most interesting illustrated lecture by a real authority.

The Club has a fine summer season laid out with its first meeting at Portland, Conn., on the third Sunday of May. It has, however, decided to discontinue the July and August outings due to the hot weather and vacations.

The Club is steadily increasing in membership as people are becoming more and more interested in minerals and in mineral collecting. Readers of ROCKS and MINERALS residing in Connecticut and who are interested in becoming members of the New Haven Mineral Club may apply for membership by writing to William H. Otersen, 16 Grove Place, West Haven, Conn.

Bridgeport Mineral Club

The Bridgeport Mineral Club held an organization meeting at the Burroughs Memorial Library Wednesday, April 15th. Mr. Jacob Miller was elected President and Mr. Patrick Haley, Secretary. During the meeting a very interesting collection of agates was shown.

New Haven, a nearby city, has a very active club and a representative was present to assist the new organization. Any people in Bridgeport or vicinity who are interested in minerals are invited to join the club by sending their applications to Mr. Patrick Haley, 458 State Street, Bridgeport, Conn.

Another Club Organized

A group of 80 mineralogists in Modesto, Calif., met on Wednesday, April 22nd, and organized a mineral club; a name for the new club is still to be decided upon. Judging from the interest and enthusiasm shown at the first meeting, prospects for a lively organization look very encouraging.

The feature of the evening was a lecture and a motion picture, both on abrasives, given by the Norton Company.

A PEEK AT OUR MAIL

Look—Best of Four!

Aberdeen, Wash.—I take two other mineral magazines and one mining journal but consider ROCKS and MINERALS by far the best of the four. —Clair Scott.

Sells On Sight!

Bridgeport, Conn.—The other day I showed a copy of ROCKS and MINERALS to a friend. He was so pleased with it that I was able to get his order for a year's subscription.—James B. Moore.

Gee—A Two Year Lease!

Ossining, N. Y.—Enclosed find $3.00 for another two year lease on many happy hours with ROCKS and MINERALS.—Newton Harris.

Proves Its Worth!

Takoma Park, Md.—I am delighted with HOW TO COLLECT MINERALS. It is not only very interesting reading but full of good advice and information as well. After reading the second paragraph on page 41, I got a little red around the ears and decided it was time I got rid of several huge chunks of albite that had been blocking up the back porch since last summer. On one of these pieces, I noticed a small green mass, about the size of a penny, which I thought would be microlite (one of my weaknesses). But when I split the rock what should drop out but a large beryl crystal. True the crystal was badly stained but any kind of beryl is good when it is found around Washington, D. C.—Douglas Graham.

It's the Finest Magazine!

Philadelphia, Penn.—Enclosed find $3.00 for which please renew my subscription to ROCKS and MINERALS for another two years. I wish you the best of success with "the finest magazine on rocks and minerals published."—Wm. Ralph Hoffa.

We Know It!

Hasty, Minn.—Enclosed is my renewal to ROCKS and MINERALS. I would not think of being without your wonderful magazine.—Amos Zum Brunner.

Wow—What An Order!

Easton, Penn.—I'm sure I will not be disappointed at any time in ROCKS and MINERALS. My only complaint, if it could be called one, is that I should like each issue to be about the size of a Sears-Roebuck catalogue.—Mrs. Sterling H. Heil.

Who Will Make It Three?

Haileybury, Ont., Canada—I was so pleased with my first copy of ROCKS and MINERALS that I immediately mentioned it to two of my friends. They both want to subscribe and herewith is money order for $3.50 as payment for a year's subscription for each.—Melville L. Shaw.

Thank You, Professor!

Bethlehem, Penn.—I wish to congratulate you on the continued improvement of the magazine. It is becoming a very useful periodical for all mineralogists and especially for the amateur collectors. —Benj. L. Miller.

Spherical Concretions

The perfection attainable by nature, when untrammeled by obstacles or complications, is well illustrated by spherical concretions on exhibition in the department of geology at Field Museum of Natural History.

Concretions are growths of mineral matter such as sand-calcite crystals caused by the deposition of carbonate of lime from hard water, slowly percolated through porous stone such as sandstone. They assume many fantastic forms, but when grown under ideal conditions they are practically perfect spheres, as illustrated by various specimens, including an important one recently presented to the museum by A. F. Sitterle of Chicago.

Concretions, it is explained by Henry W. Nichols, curator of geology, start as a single crystal of minute size, or by the coating of a small nucleus with the carbonate of lime (which is the same deposit or scale formed by water in steam boilers and tea kettles). The concretion grows outward, and the reason for the spherical form, when it occurs, is merely the absence of any reason for another shape. With conditions uniform on all sides of the growing mass there is no reason why it should grow faster in one direction than another. If it grows equally in all directions the shape is necessarily that of a sphere. The reason why more concretions are not spheres, says Mr. Nichols, is that ideal conditions are as seldom encountered where natural phenomena such as concretions are developing as they are elsewhere.